

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A computer-implemented method for identifying one or more objects within an image, the method comprising:

receiving an image that includes two or more non-overlapping embedded images~~at least one object;~~

identifying a plurality of edge pixels in the image, ~~an edge pixel based on a respective gradient value associated with each of the plurality of edge pixels; being a pixel that borders two contrasting areas of the image, the plurality of edge pixels including both inner edge pixels and outer edge pixels;~~

selecting an edge pixel from the plurality of edge pixels;

identifying a plurality of substantially connected edge pixels being substantially connected to the selected edge pixel; and

identifying a bounding area within the image, the bounding area surrounding ~~finding a the plurality of substantially connected edge pixels. connected component correlated with each object, the substantially connected component comprising a set of the edge pixels that are connected by traversing substantially only edge pixels.~~

2. (Cancelled)

3. (Currently Amended) The method of claim 1, wherein identifying a plurality of edge pixels includes computing ~~[[a]]~~ the respective gradient value for each of a plurality of pixels in the image.

4. (Currently Amended) The method of claim ~~[[2]]~~ 3, wherein computing the respective gradient value for each of the a-given-plurality of pixels includes, for each pixel, comparing respective pixel colors in a-of a neighborhood of pixels surrounding the-given-each pixel.
5. (Currently Amended) The method of claim ~~[[2]]~~ 3, wherein computing the respective gradient value for each of the a-given-plurality of pixels includes using an image smoothing filter to filter noise from the image.
6. (Currently Amended) The method of claim 1, further comprising passing each ~~component~~ plurality of substantially connected edge pixels to a processor that extracts ~~the-a~~ a location of an embedded image from the two or more non-overlapping images ~~the object from the component~~.
7. (Currently Amended) The method of claim ~~[[5]]~~ 6, further comprising refining the extracted location.
8. (Currently Amended) The method of claim ~~[[6]]~~ 7, further comprising using the extracted location to crop the embedded image ~~object~~ from the image.
9. (Currently Amended) The method of claim 1, further comprising splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images ~~a-component into two components~~.
10. (Currently Amended) The method of claim 1, further comprising merging the bounding area within the image with another bounding area within the image ~~two-components~~ into a single component ~~bounding area~~.
11. (Currently Amended) The method of claim 1, further comprising:
 - extracting ~~the-a~~ a location of each object of the two or more non-overlapping embedded images from the image; and
 - using the ~~extracted-object~~ location to seed a crop operation.

12. (Currently Amended) The method of claim ~~[[10]]~~11, wherein using the ~~extracted-object~~ location to seed a crop operation includes:

for each ~~object~~of the two or more non-overlapping embedded images in the image, using the ~~extracted-object~~ location to define a cropping area; and
cropping all the defined cropping areas in a single cropping operation.

13. (Currently Amended) The method of claim ~~[[11]]~~12, wherein:

the ~~extracted-object~~ location specifies ~~how an alignment of one of the two or more non-overlapping embedded images the object is aligned with~~ respect to the image; and
using the ~~extracted-object~~ location to define a cropping area includes using the alignment of one of the two or more non overlapping embedded images of the object to define ~~the an~~ alignment of the cropping area.

14. (Currently Amended) The method of claim ~~[[11]]~~12, further comprising:

prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input.

15. (Currently Amended) The method of claim ~~[[13]]~~12, further comprising:

prior to cropping all the defined cropping areas, wherein adjusting one or more of the defined cropping areas includes merging two of the defined cropping areas into a single defined cropping area in response to user input.

16. (Currently Amended) The method of claim ~~[[13]]~~14, wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas.

17. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for identifying one or more objects within an image, comprising instructions operable to cause a programmable processor to perform operations comprising:

receiving an image that includes two or more non-overlapping embedded images~~at least one~~ object;

identifying a plurality of edge pixels in the image,~~an edge pixel based on a respective~~ gradient value associated with each of the plurality of edge pixels; ~~being a pixel that borders two contrasting areas of the image, the plurality of edge pixels including both inner edge pixels and outer edge pixels~~;

selecting an edge pixel from the plurality of edge pixels;

identifying a plurality of substantially connected edge pixels being substantially connected to the selected edge pixel; and

identifying a bounding area within the image, the bounding area surrounding ~~finding a the~~ plurality of substantially connected edge pixels.~~connected component correlated with each object, the substantially connected component comprising a set of the edge pixels that are connected by traversing substantially only edge pixels.~~

18. (Cancelled)

19. (Currently Amended) The product of claim ~~[[16]]~~ 17, wherein identifying a plurality of edge pixels includes computing ~~[[a]]~~ the respective gradient value for each of a plurality of pixels in the image.

20. (Currently Amended) The product of claim ~~[[18]]~~ 19, wherein computing the respective gradient value for each of the a given plurality of pixels includes, for each pixel, comparing respective pixel colors in a of a neighborhood of pixels surrounding the given each pixel.

21. (Currently Amended) The product of claim ~~[[18]]~~ 19, wherein computing the respective gradient value for each of the a given plurality of pixels includes using an image smoothing filter to filter noise from the image.

22. (Currently Amended) The product of claim ~~[[16]]~~ 17, wherein the operations further comprise passing each ~~component~~ plurality of substantially connected edge pixels to a processor that extracts ~~the~~ a location of an embedded image from the two or more non-overlapping images ~~the object from the component~~.

23. (Currently Amended) The product of claim ~~[[21]]~~ 22, wherein the operations further comprise refining the extracted location.

24. (Currently Amended) The product of claim ~~[[22]]~~ 23, wherein the operations further comprise using the extracted location to crop the ~~object~~ embedded image from the image.

25. (Currently Amended) The product of claim ~~[[16]]~~ 17, wherein the operations further comprise splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images. ~~a component into two components.~~

26. (Currently Amended) The product of claim ~~[[16]]~~ 17, wherein the operations further comprise merging the bounding area within the image with another bounding area within the image ~~two components~~ into a single ~~component~~ bounding area.

27. (Currently Amended) The product of claim ~~[[16]]~~ 17, wherein the operations further comprise:

extracting ~~the~~ a location of each object of the two or more non-overlapping embedded images from the image; and

using the ~~extracted object~~ location to seed a crop operation.

28. (Currently Amended) The product of claim ~~[[26]]~~ 27, wherein using the ~~extracted object~~ location to seed a crop operation includes:

for each ~~object~~ of the two or more non-overlapping embedded images in the image, using the ~~extracted object~~ location to define a cropping area; and

cropping all the defined cropping areas in a single cropping operation.

29. (Currently Amended) The product of claim ~~[[27]]~~ 28, wherein:

the ~~extracted object~~ location specifies ~~how an alignment of one of the two or more non-overlapping embedded images~~ the object is aligned with respect to the image; and

using the ~~extracted object~~ location to define a cropping area includes using the alignment of one of the two or more non overlapping embedded images of the object to define ~~the an~~ alignment of the cropping area.

30. (Currently Amended) The product of claim ~~[[27]]~~ 28, wherein the operations further comprise:

prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input.

31. (Currently Amended) The product of claim ~~[[29]]~~ 28, wherein the operations further comprise:

~~prior to cropping all the defined cropping areas, wherein adjusting one or more of the defined cropping areas includes merging two~~ of the defined cropping areas into a single defined cropping area in response to user input.

32. (Currently Amended) The product of claim ~~[[29]]~~ 30, wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas.

33. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for identifying multiple objects within a scanned image, comprising instructions operable to cause a programmable processor to perform operations comprising:

receiving a scanned image that includes multiple non-overlapping embedded images~~objects~~;
and

identifying the multiple non-overlapping embedded images ~~objects~~ by:

(1) generating an edge pixel map of the image based on a respective gradient value associated with each pixel in the scanned image, the edge pixel map identifying each pixel in the scanned image as being an edge pixel or a non-edge pixel, an edge pixel being a pixel that borders two contrasting areas of the image having a gradient value above a threshold value;

(2) scanning the edge pixel map until an edge pixel is found;

(3) ~~computing~~ identifying a connected component containing the edge pixel, the connected component being a set of edge pixels that are connected by traversing only adjacent edge pixels;

(4) extracting one of the multiple non-overlapping embedded images~~objects~~ from the ~~based on the~~ connected component;

(5) erasing from the edge pixel map all the ~~edge~~ pixels that belong to the connected component or that correspond to pixels inside ~~are enclosed by~~ the extracted one of the multiple non-overlapping embedded images~~object~~; and

(6) repeating steps (2) through (5) until no more edge pixels are found.